Amendments to the Specification

The paragraph starting at page 7, line 14 and ending at line 15 has been amended as follows.

Figs. 8A to 8E ~~is a view~~ are views illustrating output results for test patterns for registration; and

The paragraph starting at page 10, line 12 and ending at line 24 has been amended as follows.

Now, it is assumed that what is called no-space printing is carried out in which the whole area of a print medium is printed without forming any space at the edges of the print medium. Then, as shown in Fig. 6, this printing is accomplished by printing an actual sheet P, shown by a solid line, so as to print an area bounded by ~~an chain~~ a double-dashed chain line extending along and externally away from the sides of the sheet P by predetermined amounts $\alpha 1$ to $\alpha 4$, respectively. In this case, ink droplets ejected to positions outside the sheet P land on a platen ink absorbent 23 inserted into a concave portion in the platen 6 which is formed opposite the print element arranged surface of the print head 13.

The paragraph starting at page 11, line 6 and ending at line 26 has been amended as follows.

First, test patterns are formed in order to determine a reference registration value (first registration value). That is, the data to be printed shown in Fig. 7C is divided and the test pattern shown in Fig. 7A is printed during forward printing. The test pattern shown in Fig. 7B is printed during backward printing. In both cases, the patterns are formed in the same area. Then, the print medium is conveyed by a predetermined amount, and similar test patterns are printed in an area that has not been printed yet. This process is repeated a number of times. However, timing for ink ejection is varied for each sheet conveyance. This provides output results such as those shown in Figs. 8A to 8E. Then, one of these results, ~~is selected~~ which is most similar to the test pattern shown in Fig. 7C, is selected. Specifically, the pattern shown in Fig. 8C is selected to determine a registration value for the smallest variation in ink droplet landing positions between forward printing and backward printing. One of the output results is normally selected visually by a user. However, the selection may be automated by using a scanner to read output results and inputting this data to the apparatus.

The paragraph starting at page 12, line 13 and ending at page 13, line 12 has been amended as follows.

Then, after the trailing edge of the sheet P has passed through the nip portion between the conveying roller 8 and the pinch roller 12, a force that urges the sheet P against ~~on~~ the top surface of the platen 6 decreases significantly. The sheet P thus floats upward as shown at V2 in Fig. 5 to reduce the sheet distance. Thus, the application of the first registration value, determined by the selection from the output results of the test patterns, results in variations in the landing positions of ink droplets between the forward and backward directions. Accordingly, a second registration value that prevents variations in the landing positions of ink droplets is pre-calculated on the basis of the first registration value, determined by registration, and the amount of change in sheet distance γ (see Fig. 5), which change is caused by the passage of the leading edge of the sheet through the nip portion. Then, after the sheet has passed through the nip portion between the conveying roller 8 and the pinch roller 12, the sheet is printed by causing the print head to eject ink using a timing based on the second registration value. This operation corresponds to steps S7 and ~~S8)~~ S8 in the flow chart shown in Fig. 3. The appropriate change amount γ is experimentally obtained. The change amount γ is preferably set independently for each sheet type. It can be determined on the basis of the detection of the sheet P by the sheet sensor 10 whether or not the trailing edge of the sheet has passed through the nip portion.

The paragraphs starting at page 14, line 1 and ending at line 12 have been amended as follows.

With reference to the block diagram shown in Fig. 4, a brief description will be given of a control system applied to the embodiment of the present invention.

In this figure, reference numeral 100 denotes a control section that controls each driving section of the ink jet printing apparatus according to this embodiment. The control section 100 has a CPU 101 that executes processes such as various calculations, determinations, and control, a ROM 102 that stores programs executed by the CPU 101, and a RAM 103 temporarily storing inputted data and functioning as a work area for calculation processes executed by the CPU 101.

The paragraph starting at page 17, line 1 and ending at line 7 has been amended as follows.

As described in the previously described first embodiment, if a concave portion is formed in the platen so that an ink absorbent can be inserted into the concave portion, then the sheet distance may vary when the leading and trailing edges of the sheet ~~enters~~ enter the concave portion. In this case, the landing positions of ink droplets deviate and thus the registration value must be corrected.

The paragraphs starting at page 17, line 20 and ending at page 18, line 18 have been amended as follows.

With the ink jet printing apparatus, if high-density printing increases the amount of ink landing on a print medium per unit area, the print medium may be cockled. In this case, the sheet distance varies between actual image printing and the formation of test patterns for registration. Accordingly, if the registration values determined on the basis of the test patterns are directly used to perform a printing operation, the landing positions of ink droplets may deviate from the correct ones. Thus, in the fifth embodiment, the registration values are corrected in accordance with the printing density. This enables the optimum registration to be accomplished even during high-density printing. When the correction of the registration values based on the printing density is applied to the first, third, and fourth embodiments, the combination of this application with the functions of each embodiment enables higher-grade printing to be carried out all over the print medium.

The present invention has been described in detail with respect to preferred embodiments, and it will now be apparent from the foregoing to those skilled in the art that changes and modifications may be made without departing from the invention in its broader ~~aspect~~ aspects, and it is the intention, therefore, ~~in~~ that the ~~apparent~~ appended claims ~~to~~ cover all such changes and modifications as fall within the true spirit of the invention.